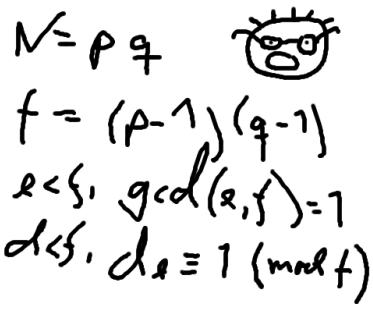
Problem H

The Still Embarrassed Cryptographer



The not so young any more, but still very promising cryptographer Børge is implementing a new security module for his company. There were a lot of problems with the old module last time Børge was on holiday, as nobody could understand his code. So his boss have ordered him to keep this new module much simpler.

In this system the secret encryption key is an injective function c from the alphabet onto itself, such that for a string $S = s_1 \dots s_m$, we have $\text{crypt}(S) = \text{c}(s_1) \dots \text{c}(s_m)$. The secret decryption key c^{-1} has the property $\text{c}^{-1}(\text{c}(s)) = s$, and is used in the decryption $\text{crypt}^{-1}(T) = \text{c}^{-1}(t_1) \dots \text{c}^{-1}(t_m)$. Børge's functions crypt() and $\text{crypt}^{-1}()$ send each symbol with a Remote Procedure Call to where the secret keys are stored, deep inside a mountain.

A problem is that $\text{crypt}^q(\text{crypt}(S)) = S$ for some q, and the eager cracker can just keep on applying crypt() on the encrypted message until he gets a readable message. To make the system totally safe, Børge wants to make crypt() throw a `SecurityExceptionInAmundsCodeReally` if q is a small number. Help Børge implement this function.

Input specifications

The first line of input gives $1 \leq n \leq 100$, the number of test cases. Each test case consists of two lines, containing original string S and the encrypted string T respectively, such that $\text{crypt}(S) = T$. You have $1 \leq |S| = |T| \leq 1000$. The strings are from the alphabet "`A`"... "`Z`". The encryption function c is different in each test case.

Output specifications

For each test case, output a line with the number q, or "`mjau`", if this cannot be decided just from S and T.

Sample input

```
3
CRYPTO
CPTOYR
A
A
A
B
```

Output for sample input

```
5
0
mjau
```